AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior listings and versions of claims in this application.

1. (Currently Amended) Optical data storage and reading device comprising: a multilayer fluorescent information-carrying optical disc; a source of reading radiation; means for focusing the reading radiation into a micro-spot of the multilayer disc; means for spatially separating the reading radiation from information-carrying radiation; and means for detecting an availability of bit information in the micro-spot, wherein a plurality of micro-spots are provided in the disc with the micro-spots comprising pits, grooves, or both, each having widths of about 0.6 μm for increased transmission of data-carrying radiation.

2. (Original) Device according to claim 1, wherein the means for spatially separating comprises a spectrum filter.

3. (Original) Device according to claim 2, wherein the spectrum filter comprises a dichroic filter.

4. (Original) Device according to claim 2, wherein the spectrum filter comprises a smectic liquid crystal.

5. (Original) Device according to claim 2, wherein the spectrum filter comprises a Notch filter.

6. (Original) Device according to claim 5, wherein the Notch filter is a liquid crystal Notch filter.

7. (Original) Device according to claim 5, wherein the Notch filter is a Notch filter tuned over a spectrum.

8. (Original) Device according to claim 1, wherein the means for spatially separating comprises a polarization removable film polarizer.

9. (Original) Device according to claim 1, wherein the means for spatially separating comprises an electrically controlled polarization filter of a Pockels cell type.

10. (Currently Amended) Optical data storage and reading device comprising: a multilayer fluorescent information-carrying optical disc; a source of reading radiation; means for focusing the reading radiation into a micro-spot of the multilayer disc to generate information carrying information that is transmitted in various directions; means for spatially separating the reading radiation from information-carrying radiation; means for detecting an availability of bit information in the micro-spot; and ~~Device according to claim 1, further comprising~~ a light-controlling element for reflecting towards the detecting means at least part of the information-carrying radiation that is moving away from the detecting means, thus increasing an amount of the information-carrying radiation which reaches the detector.

11. (Currently Amended) Device according to claim 10, wherein the light-controlling [[collecting]] element is located on a non-readable side of the fluorescent disc.

12. (Currently Amended) Device according to claim 10, wherein the light-controlling [[collecting]] element comprises an angle mirror.

13. (Currently Amended) Device according to claim 10, wherein the light-controlling [[collecting]] element comprises a pyramidal light-controlling [[collecting]] element.

14. (Original) Device according to claim 12, wherein the angle mirror is made as a separate element.

15. (Original) Device according to claim 12, further comprising a device for following a displacement of the angle mirror.

16. (Original) Device according to claim 12, wherein the angle mirror consists of plurality of micro-angle mirrors.

17. (Original) Device according to claim 12, wherein the angle mirror is located directly on a surface of the fluorescent disc.

18. (Original) Device according to claim 16, wherein the plurality of said micro-angle mirrors are located on a back surface of the fluorescent disc.

19. (Original) Device according to claim 16, wherein a geometrical size of each of said micro-angle mirrors is much less than a spot size of the micro-spot.

20. (Currently Amended) Optical data storage and reading device comprising: a multilayer fluorescent information-carrying optical disc; a source of reading radiation; means for focusing the reading radiation into a micro-spot of the multilayer disc; means for spatially separating the reading radiation from information-carrying radiation; means for detecting an availability of bit information in the micro-spot; and ~~Device according to claim 1, further comprising~~ a compensating electronic device for compensating for an influence of dye fluorescence lifetime.

21. (Original) Device according to claim 20, wherein the compensating electronic device is located in an electric output scheme of the detector.

22. Device according to claim 1, wherein the means for spatially separating is located in front of the detector.

23. (Currently Amended) Optical data storage and reading device comprising: an information-carrying optical disc; a source of reading radiation; means for focusing the reading radiation into a micro-spot of the multilayer disc; means for spatially separating the reading radiation from information-carrying radiation; means for detecting an availability of bit information in the micro-spot; ~~Device according to claim 1~~, wherein the ~~detector~~ detecting means comprises a first detector for detecting the information-carrying radiation when the information-carrying radiation has a wavelength equal to a wavelength of the reading radiation and a second detector for detecting the information-carrying radiation when the information-carrying radiation has a wavelength different from the wavelength of the reading radiation.

24. (Original) Device according to claim 23, wherein the means for spatially separating comprises an optical element for directing the information-carrying radiation to

one of the first detector and the second detector in accordance with the wavelength of the information-carrying radiation.

25. (Original) Device according to claim 24, wherein the optical element is a dichroic mirror.

26. (Original) Device according to claim 24, wherein the optical element is a movable filter.

Claims 27 to 51. (Cancelled)

52. (New) Device according to claim 23, wherein the source of reading radiation when directed onto the disc generates information-carrying radiation having a fluorescent wavelength and information-carrying radiation having a laser wavelength, with the first detector capable of detecting the fluorescent wavelength information-carrying radiation and the second detector capable of detecting laser wavelength information-carrying radiation.

53. (New) Device according to claim 52, which further comprises a filter element positioned between the disc and the detectors, with the filter capable of transmitting fluorescent wavelength information-carrying radiation to the detectors but not transmitting laser wavelength information-carrying radiation to the detectors.

54. (New) Device according to claim 53, wherein the filter element is movable such that receipt of fluorescent wavelengths by the first detector identifies the disc as a fluorescent multilayer disc and enables the filter element to be maintained in position between the disc and detectors, while receipt of no fluorescent wavelengths by the first detector causes the device to move the filter element so that the laser wavelength information-carrying radiation can be transmitted to the second detector.

55. (New) Device according to claim 54, wherein the receipt of laser wavelength by the second detector identifies the disc as a CVD or DVD.

56. (New) Device according to claim 23, wherein the source of reading radiation comprises a laser diode producing a primary linearly polarized light beam, the focusing

means comprises a grating that diffracts the beam, a lens, beam splitter and mirror for transmitting the information carrying radiation to the detectors; and the separating means comprises a spectrum filter or polarizer.

57. (New) Device according to claim 56, wherein the grating diffracts the beam to produce two secondary beams in addition to the primary beam.

58. (New) Device according to claim 23, wherein the disc is a multilayer fluorescent disc that includes a transparent protective substrate and successive data-carrying layers, located one above another, separated by polymer layers and assembled in single block, with the data-carrying layers including pits or grooves, or both, filled with fluorescent material.

59. (New) Device according to claim 58, wherein the data-carrying layers include micro-spots comprising pits, grooves, or both, each having widths of about 0.6 μm for increased transmission of data-carrying radiation.

60. (New) Device according to claim 20, wherein the detecting means comprises one or more detectors, the source of reading radiation comprises a laser diode producing a primary linearly polarized light beam, the focusing means comprises a grating that diffracts the beam, a lens, beam splitter and mirror for transmitting the information carrying radiation to the detectors; and the separating means comprises a spectrum filter or polarizer.

61. (New) Device according to claim 60, wherein the grating diffracts the beam to produce two secondary beams in addition to the primary beam.

62. (New) Device according to claim 20, wherein the multilayer fluorescent disc includes a transparent protective substrate and successive data-carrying layers, located one above another, separated by polymer layers and assembled in single block, with the data-carrying layers including pits or grooves, or both, filled with fluorescent material.

63. (New) Device according to claim 62, wherein the data-carrying layers include micro-spots comprising pits, grooves, or both, having widths of about 0.6 μm for increased transmission of data-carrying radiation.

64. (New) Device according to claim 10, wherein the detecting means comprises one or more detectors, the source of reading radiation comprises a laser diode producing a primary linearly polarized light beam, the focusing means comprises a grating that diffracts the beam into three components, a lens, beam splitter and mirror for transmitting the information carrying radiation to the detectors; and the separating means comprises a spectrum filter or polarizer.

65. (New) Device according to claim 64, wherein the grating diffracts the beam to produce two secondary beams in addition to the primary beam.

66. (New) Device according to claim 10, wherein the light-controlling element is configured and positioned to reflect sufficient information-carrying radiation to approximately double that which is transmitted to the detecting means.

67. (New) Device according to claim 66, wherein the light-controlling element is located opposite the reading side of the disc to reflect part of the information-carrying radiation to the detecting means.

68. (New) Device according to claim 10, wherein the multilayer fluorescent disc includes a transparent protective substrate and successive data-carrying layers, located one above another, separated by polymer layers and assembled in single block, with the data-carrying layers including pits or grooves, or both, filled with fluorescent material.

69. (New) Device according to claim 68, wherein the data-carrying layers include micro-spots comprising pits, grooves, or both, each having widths of about 0.6 μm for increased transmission of data-carrying radiation.

70. (New) Device according to claim 1, wherein the detecting means comprises one or more detectors, the source of reading radiation comprises a laser diode producing a primary linearly polarized light beam, the focusing means comprises a grating that diffracts the beam, a lens, beam splitter and mirror for transmitting the information carrying radiation to the detectors; and the separating means comprises a spectrum filter or polarizer.

71. (New) Device according to claim 70, wherein the grating diffracts the beam to produce two secondary beams in addition to the primary beam.

72. (New) Device according to claim 1, wherein the multilayer fluorescent disc includes a transparent protective substrate and successive data-carrying layers, located one above another, separated by polymer layers and assembled in single block, with the data-carrying layers including pits or grooves, or both, filled with fluorescent material.

73. (New) Device according to claim 72, wherein the data-carrying layers include micro-spots comprising pits, grooves, or both, each having widths of about 0.6 μm for increased transmission of data-carrying radiation.